State of California—Health and Human Services Agency

Department of Health Services

INFECTION PREVENTION RECOMMENDATIONS FOR SUSPECTED AVIAN INFLUENZA A (H5N1) IN HUMANS

Updated June 8, 2006

The California Department of Health Services (CDHS) has developed the following interim recommendations to guide healthcare facilities, healthcare providers, and local health departments in the management of persons who develop acute respiratory illness following travel to a geographic area where avian influenza A (H5N1) outbreaks are ongoing and who meet the CDHS Surveillance Definition for Influenza A (H5N1) infection. Given the limited information available on human-to-human transmission of avian influenza and the need to reduce the risk of viral reassortment (i.e., mixing of genes from human and avian viruses) it is prudent to take all possible precautions when caring for patients with confirmed or suspected H5N1 influenza infection. These recommendations were developed specifically for use during the World Health Organization (WHO) Pandemic Phases 3-4 (Pandemic Alert Period: human infection with no or very limited human-to-human transmission suggesting that the virus is not well adapted to humans), and may be modified further if the WHO Pandemic Phase changes, H5N1 activity or information on transmissibility changes, or as appropriate for individual situations. For questions or assistance on infection control issues contact Jon Rosenberg (jrosenbe@dhs.ca.gov) or Sue Chen (schen3@dhs.ca.gov), 510-620-3434, or Chris Cahill (ccahill@dhs.ca.gov), (415) 710-6489).

All patients who present to or telephone a health-care setting with a history of fever and respiratory symptoms should be questioned regarding their recent travel history. Patients should be screened according to the CDC/CSTE Case Definition of Suspected Avian Influenza (H5N1) (see Appendix 1). As soon as a patient is identified as suspected of avian influenza, the local health department and an infection control practitioner, if applicable, must be notified.

Because (a) the clinical course of H5N1 infection may be unpredictable, (b) airborne precautions may be difficult to maintain in a setting other than a hospital, and (c) laboratory results for H5N1 testing should be available within 24-48 hours, physicians should strongly consider transferring or directing (with appropriate referrals) suspect patients to the nearest emergency department. The patient should, if possible, don a surgical or procedural mask during transport. Personnel involved in transporting suspect patients to the emergency department (ambulance staff) should wear the same personal protective equipment described below for health care workers when in contact with the suspect patient.

GENERAL PRECAUTIONS

Respiratory Hygiene and Cough Etiquette Precautions

All patients who present to a health-care setting with fever and respiratory symptoms at any time of the year should be managed with Respiratory Hygiene and Cough Etiquette Precautions**.** Visual alerts (in languages appropriate to community populations served) should be posted at all public entrances to healthcare facilities (e.g., emergency departments, physician offices, outpatient clinics, etc.). The visual alerts should instruct patients with fever and respiratory symptoms to:

- Wear a mask over the nose and mouth at all times after entering the healthcare facility. Only procedure or surgical masks (i.e., masks with ear loops, cone shape mask with elastic head band or masks with ties) should be used. N95 or higher level of respiratory protection should not be used for patients. Patients should never wear any kind of respiratory protection that has an exhalation valve; this type of respirator does not prevent droplet nuclei from being expelled into the air;
- Inform the first point of contact healthcare worker (triage nurse or patient registration personnel) of symptoms of a respiratory infection;
- Cover the nose and mouth with a disposable tissue when coughing or sneezing;
- Dispose of soiled tissues immediately after use in the nearest waste receptacle; and
- Perform hand hygiene (e.g., hand washing with soap and water, alcohol-based hand rub, or antiseptic hand wash) after contact with respiratory secretions (e.g., sneezing, coughing or blowing the nose) and after hand contact with disposable tissues contaminated with respiratory secretions.

Healthcare workers in emergency, clinic and outpatient departments should:

- Provide procedure or surgical masks at the point of entry into waiting rooms;
- Provide disposable tissues, no-touch, plastic lined waste receptacles for tissue disposal and conveniently located dispensers of alcohol-based hand rub;
- Provide supplies near sinks for hand washing (i.e., soap, disposable towels) that are consistently available;
- Practice Standard Precautions at all times;
- Triage patients with respiratory symptoms immediately; and
- Obtain a travel history to rule out recent visits to an H5N1-affected country.

Droplet Precautions

Place patients with symptoms of fever and respiratory infection but who do not meet the case definition of H5N1 avian influenza in a designated area of the waiting room. The designated area should be located at least three feet away from other asymptomatic patients, when possible. As an alternative, place patients in a treatment room until examined by a physician. Droplet Precautions (e.g., wearing a surgical or procedure mask), in addition to Standard Precautions, should be practiced by healthcare providers at all times when within 3 feet of patients with fever and symptoms of any respiratory infection.

ISOLATION PRECAUTIONS FOR PATIENTS WITH SUSPECTED H5N1 INFLUENZA

Patients who, at the time of triage, meet the case definition of suspected H5N1 avian influenza should be placed on isolation precautions as follows. These include Airborne Infection Isolation, Contact and Standard Precautions. For complete information on these precautions see http://www.cdc.gov/ncidod/dhqp/gl_isolation.html. These precautions should be continued for 14 days after onset of symptoms or until either an alternative diagnosis is established or diagnostic tests performed by the State or local health department indicate that the patient is not infected with influenza A virus.

- Instruct the patient to wear a surgical mask over their nose and mouth at all times until placed in a designated airborne infection isolation room (AIR);
- Place hospitalized patients in a designated AIR, when available. AIRs should have monitored negative air pressure in relation to the corridor and 6 to 12 air changes per hour (ACH) exhausted directly to the outside or recirculated through a high efficiency particulate air (HEPA) filter. If an AIR is not available, place a portable HEPA filter in the room. The door should remain closed and a sign placed on the door informing visitors and staff of the appropriate precautions to take prior to entering the room;
- Place emergency department and outpatient clinic patients in an AIR, when available. If an AIR is not available, place the patient in an examination room with a portable HEPA filter and close the door;
- Allow the AIR to remain vacant with the door closed until the contaminated air has been be completely recirculated (the amount of time will depend on the number of air changes per hour, but minimally 1 hour);
- Wear fit-tested NIOSH-approved respiratory protection (N95 filtering face piece respirator or higher level of protection) when entering the room. Respirators should be used in the context of a complete respiratory protection program as required by the California Occupational Safety and Health Administration (Cal/OSHA). This includes training, fit-testing, and fit-checking to ensure appropriate respirator selection and use. To be effective, respirators must provide a proper sealing surface on the wearer's face;
- During procedures that may generate increased aerosols (e.g., endotracheal intubations, nebulizer treatment, bronchoscopy), use of a powered air-purifying respirator (PAPR) is strongly recommended.
- Suspect patients should not be transported to other areas of the hospital unless absolutely necessary. The patient should wear a surgical mask during any

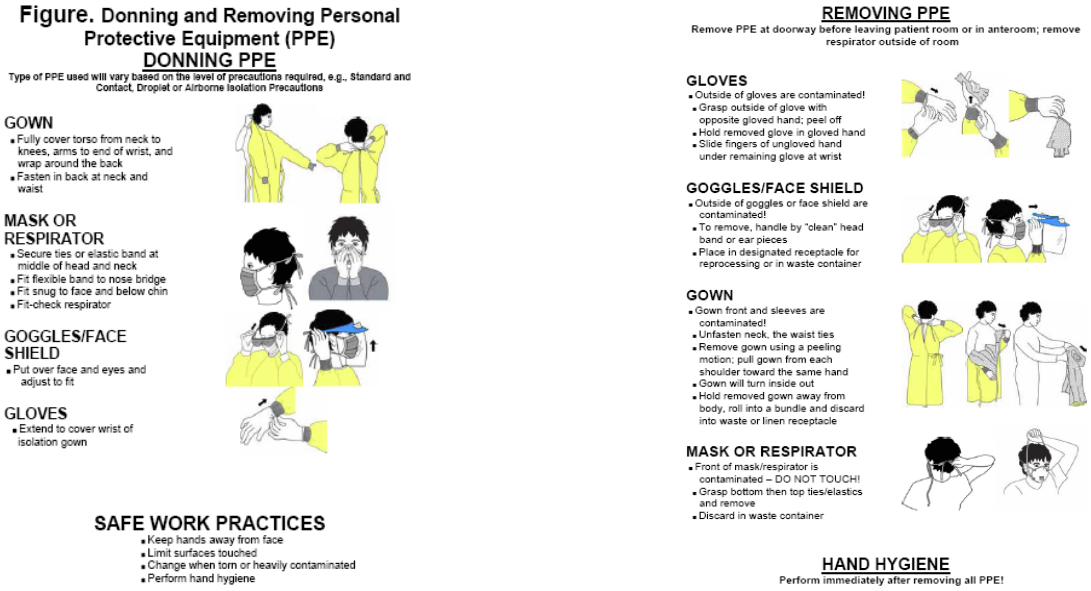
transport, if tolerated. If an elevator is used, only the patient and transport team should be in the elevator. Notify the receiving area prior to transport.

- Wear eye or full facial protection (face shield or goggles) when within 3 feet of a patient;
- Wear a disposable long sleeve gown when direct contact with a patient or the patient's immediate environment is anticipated;
- Wear disposable, non-sterile gloves when direct contact with the patient or the patient's immediate environment is anticipated;
- Perform hand hygiene after gloved and ungloved contact with the patient's blood, body fluids and respiratory secretions, after contact with contaminated environmental surfaces and after removal of gloves. If hands are not visibly soiled, a waterless hand hygiene product can be used;
- Instruct healthcare workers and visitors not to touch the mucous membranes of their nose, eye or mouth with unwashed hands or contaminated gloves;
- Use dedicated or disposable equipment such as stethoscopes, blood pressure cuffs, thermometers;
- Restrict visitors to a minimum; visitors may be offered respiratory protection (i.e., N95) and should be instructed on the use of the respirator before entering the room (as per CDC recommendations for tuberculosis, December 30, 2005);
- Decontaminate environmental surfaces and equipment with a hospital approved disinfectant after the patient has been discharged from the room.
- All staff including environmental services entering the room should wear an N-95 respirator when entering the room until room cleaning has been completed or 1 hour, whichever comes later.

Donning and Removing Personal Protective Equipment (PPE)

For pathogens that may be transmitted through contamination of skin and clothing, it is important for healthcare workers to **follow the proper order for putting on and removing PPE:**

Figure. Donning and Removing Personal Protective Equipment (PPE)



(Source CDC http://www.cdc.gov/ncidod/sars/ic.htm)

Vaccination of Health-Care Workers against Human Influenza

Healthcare workers involved in the care of patients with influenza including suspected avian influenza should if possible be vaccinated with the most recent seasonal human influenza vaccine. In addition to providing protection against the predominant circulating influenza strain, this measure is intended to reduce the likelihood that a healthcare worker will be co-infected with human and avian strains, where genetic rearrangement could take place, leading to the emergence of potential pandemic strain.

Surveillance, Monitoring, and Management of Health-Care Workers

- Healthcare workers who have worked with suspect or patients with H5N1 should be vigilant for the development of fever (i.e., measure temperature twice daily) or respiratory, neurological, or gastrointestinal symptoms for 10 days after the last day of work with those patients.
- If symptomatic, the healthcare worker should notify their primary care physician of the exposure when making an appointment. In addition, healthcare workers should notify the hospital's occupational health and infection prevention professionals.
- With the exception of visiting a primary care physician, symptomatic healthcare workers should be advised to stay home and restrict activity and contact with others until an alternative diagnosis is established or diagnostic tests performed by the State or local health department indicate that the patient is not infected with influenza A virus.
- Healthcare workers should practice Respiratory Hygiene and Cough Etiquette Precautions when ill at home (see Home Care Settings) to lower the risk of transmission of virus to others.
- For health care workers with fever and symptoms strongly suggestive of influenza, after appropriate specimens have been obtained (see CDHS Guidelines for Collecting and Shipping Specimens for Influenza A (H5N1) Diagnostics) consider empiric antiviral treatment with input from CDHS and CDC and complete testing for alternative diagnoses.

Home Care Settings for Patients with Suspected H5N1 Influenza

It is not feasible to use Airborne Infection Isolation Precautions in the home setting. Therefore, the use of Respiratory Hygiene and Cough Etiquette, Droplet, and Contact Precautions are recommended. Prior to patient placement in a home setting, the local health department will interview the patient or patient's care giver to determine if that setting meets minimum requirements, including the availability of a care giver. Symptomatic patients who do not require hospitalization should not go to work, school, childcare centers or other public areas until fourteen days after the onset of symptoms. During this time, infection prevention recommendations, as described below, should be used to minimize the potential for transmission.

- Patient and household members should have separate sleeping arrangements, if possible;

- The patient should cover mouth and nose with a facial tissue when coughing or sneezing; wear a surgical mask when uninfected persons enter the room or, if unable, uninfected persons should wear a surgical mask when entering the room;

Caregivers should:

- Wear disposable gloves when in contact with the ill person's blood and body fluids (including respiratory secretions or items such as disposable tissues contaminated with respiratory secretions) and the immediate environment. Immediately after activities involving contact with blood and body fluids including respiratory secretions, gloves should be removed and discarded and hands should be washed. *Gloves are not intended to replace proper hand hygiene;*
- Wash hands with soap and water after gloved and ungloved contact with the ill person's blood and body fluids (including respiratory secretions or items such as disposable tissues contaminated with respiratory secretions) and the ill person's immediate environment. Alcohol-based hand hygiene products can be used after removing gloves when hands are not visibly soiled with respiratory secretions, blood and other body fluids. Gloves should never be washed or reused;
- Unwashed dishes and utensils should not be shared. Wash dishes and utensils with warm to hot water and any commercial detergent after each use. Disposable plates or eating utensils are not necessary;
- Clean and disinfect environmental surfaces in the kitchen, bathroom and bedroom at least daily with a household cleaner diluted and used according to manufacturer's instructions. Bleach, if used, should be diluted 1 part bleach to 10 parts water. A fresh solution should be mixed daily;
- Linens should not be shared between household members until they have been washed. Wash clothes, bed linens and towels in water at any temperature using any commercial laundry product and dry at an appropriate fabric temperature. Gloves should be worn when handling soiled linens;
- Dispose of waste soiled with respiratory secretions, blood or other body fluids, and surgical masks as normal household waste;
- Any rented, non-disposable medical or respiratory equipment should be placed in a plastic bag and labeled contaminated prior to their return.

Monitoring and Management of Household Members, Care Providers or Other Close Contacts of Patients with Suspected H5N1 Influenza

- Contacts should take their temperature twice daily for 10 days after the last day of exposure and contact their primary care provider if they develop a fever (temperature greater than 100.4°F [>38.0°C]), or respiratory, neurological, or gastrointestinal symptoms.
- The primary care physician must notify the local health department immediately of symptomatic contacts.
- Symptomatic contacts should stay home and restrict activity and contact with others until an alternative diagnosis is established or diagnostic tests performed by the State or local health department indicate that the patient is not infected with influenza A virus.
- Symptomatic contacts should practice Respiratory Hygiene and Cough Etiquette Precautions when ill at home to lower the risk of transmission of virus to others.

APPENDIX 1: SUSPECT CASE DEFINITION FOR H5N1 INFECTION IN HUMANS: UPDATED JUNE 8, 2006

This suspect case definition was revised June 8, 2006
and only applies to **WHO Global Phase 3**

I. A suspect case, for whom H5N1 laboratory testing is recommended, meets these criteria:

1. A patient who has an illness that requires hospitalization or is fatal; **AND** has or had a documented temperature of ≥ 38°C (>100.4°F); **AND** has radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternative diagnosis has not yet been established; **AND** has at least one of the *potential exposure criteria* (A,B or C) listed below).

   Potential exposure criteria:
   Within 10 days of symptom onset,

   A A history of travel to a country with influenza H5N1 documented in poultry, wild birds, and/or humans (http://www.oie.int/downld/AVIAN%20INFLUENZA/A_AI-Asia.htm) AND at least one of the following potential exposures:
   - direct contact with (e.g., touching) sick or dead domestic poultry;
   - direct contact with surfaces contaminated with poultry feces;
   - consumption of raw or incompletely cooked poultry or poultry products;
   - direct contact with sick or dead wild birds suspected or confirmed to have influenza H5N1;
   - close contact (approach within 1 meter approx. 3 feet]) of a person who has been hospitalized or died due to a severe unexplained respiratory illness

   OR

   B. Was in close contact (approach within 1 meter [approx. 3 feet]) of an ill person who has confirmed or suspected H5N1 infection

   OR

   C. Worked with live influenza H5N1 virus in a laboratory.

II. A suspect case, for whom H5N1 laboratory testing should be considered on a case-by case basis in consultation with local and state health departments, meets these criteria:

1. A hospitalized or ambulatory patient with mild or atypical disease (e.g., a patient with respiratory illness and fever who does not require hospitalization, or a patient with significant neurological or gastrointestinal symptoms in the absence of respiratory disease) who has at least one of the potential exposure criteria (A,B or C) listed above.

OR

2. A patient with severe or fatal respiratory disease whose epidemiological information is uncertain, unavailable, or otherwise suspicious but does not meet the criteria above (e.g., a returned traveler from an influenza H5N1-affect country whose exposures are unclear or suspicious, or a person who had contact with sick or well-appearing poultry).